

CITATION OF SCIENTIFIC NAMES OF PLANTS

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Greater uniformity and clarity in citation of scientific names of plants should be aims of plant taxonomists. Camp, Rickett, and Weatherby (3, p. 3) have noted that several types of citation were employed in the text and lists of the International Rules of Botanical Nomenclature (2) and suggested that standardization of botanical citations would be advantageous, especially to workers in taxonomy. The next edition of the International Rules, following Rickett's (4, p. 51) proposal, is to have uniform citations and a set of suggestions of rules for citation to serve as a model. As Rickett stated, the lack of a standardized method of citation causes inconvenience to readers and often leads to error. Suggestions for clearer and more uniform citations are offered below.

Of course, a standard system of citing botanical references in general is badly needed also, as discussed by Rickett (7) and Little (6). The Committee on Publication Problems of the American Institute of Biological Sciences is working on this subject. Naturally, plant taxonomists should try to conform to any system accepted by a majority of plant scientists but would need some special rules applying to scientific names instead of references. For example, in citation of scientific names the title of a periodical article is omitted and book titles are abbreviated. Taxonomists can conveniently insert their numerous brief citations in lists of synonymy or in parentheses in the text, without resorting to complicated footnotes or long bibliographies or lists of references.

Agreement on a system for citing scientific names should be relatively easy, because the citations are short and because fewer persons are involved, just the plant taxonomists and not botanists in general, editors, and librarians. Uniformity should be more important to taxonomists because they use so many more citations than other botanists.

The lack of uniformity is everywhere evident. For example, the two most important current taxonomic indexes for higher plants, the Supplementa of Index Kewensis and Gray Herbarium Card-index, have different ways of citing volume, page, and date. The former has conservative citations, such as "1940, xxvii. 188," while the latter has modern citations of different order for these three items, such as "27:188. 1940." The International Rules (2, 3) adopted a third order in its lists, for example, "LXXXIX. (1819) 105." Many additional combina-

tions are possible by variation of Arabic, small Roman, and capital Roman numerals and by placing the year in parentheses. My personal choice is the method of the Gray Herbarium Card-index, of volume in Arabic numerals followed by colon, page number, period, and date. It is hoped that Roman numerals, being less easily read, will be abandoned.

Section 7 of the International Rules (2, 3), Citation of authors' names and of literature for purposes of precision (Art. 46-49, Rec. XXX-XXXII), is concerned mainly with authors and lacks instructions for other parts of the citation. Likewise, the detailed citations to literature of the United States Department of Agriculture, compiled by Whitlock (10), devoted only one paragraph out of 15 pages to citations of scientific names and synonymy.

The four to seven essential parts of a citation following a Latin scientific name, which should be mentioned in rules for citation, are: author (usually abbreviated unless short), abbreviated title of book or periodical, series of periodical (if any), volume (if any), page, figure or illustration (if any), and date. Citations of scientific names differ chiefly from citations of books and periodicals as botanical references as follows: (1) author is usually abbreviated unless short, without forenames or with initials if needed to prevent confusion; (2) title of a book is abbreviated and title of a periodical article is omitted, though abbreviation of the periodical is retained; (3) a single page is cited, the one where the name was published; (4) a single figure is cited, the one illustrating the plant named, or illustration may be omitted; and (5) place of publication of a book is omitted. Other details of citing series, volume, page, and date are the same for scientific names as for references under a set of rules for citations.

A criticism of many citations of scientific names, especially in the older works, is that they are too brief. While the specialist already familiar with a particular work can identify it easily from a much shortened citation, a student or specialist in another branch of botany or a librarian might lose time in locating the desired reference. Of course, the taxonomist working in a large herbarium with its specialized library and with an experienced botanical librarian to bring him any needed reference has no problem. However, the investigator who has to look up the call numbers himself in the large library of a scientific institution or university appreciates the fuller citations.

Instructions for abbreviating authors' names are covered in Recommendation XXX of the International Rules. However, con-

fusion is reduced if names infrequently used and names not easily recognized from the shortened form are left unchanged. Boivin (1, p. 72) has made a good suggestion that abbreviations be fewer in number and be limited to those representing appreciable saving of time and space. He explained that abbreviations when too numerous become difficult to memorize and force botanists to waste time looking them up in indexes. In the 1908 edition of Gray's Manual he reported that abbreviating of authors' names saved only five pages, while three additional pages were required to explain the abbreviations. For consistency it is helpful to follow a list of abbreviations, such as found in that and some other manuals and floras. In a search for a work by an unfamiliar author in the card catalog of a large library, time is saved by first obtaining the author's full name from a list of this kind.

Rickett (7, p. 169) has suggested that Torrey and Gray might well be abbreviated "T. & G." instead of "Torr. et Gray," but the latter is much clearer and not too long. Names shortened to the first letter may be meaningless to those not acquainted with the original work. However, a few well known exceptions, such as L. for Linnaeus and DC. for De Candolle, both given as examples in the Rules, and H. B. K. for Humboldt, Bonpland, and Kunth, are already established. Both "Torr. & Gray" and "Torr. et Gray" are preferred to "Torr. and Gray," which includes an English conjunction in a Latin scientific name. If "and" were approved, then botanists writing in other languages might use the foreign equivalents, or the language of the original work might be retained for the conjunction in each case. (Likewise, in citations of scientific names, Latin "t." for tabula in plate numbers is more consistent than English "pl." for plate.)

A comma between abbreviation of author and the title is helpful, though some contend that the period is sufficient. The old practice of inserting a comma before the author's name should be discontinued.

For abbreviation of titles of current periodicals, one of several lists may be followed, according to the editorial policy of the publication. Examples are the abbreviations used by Biological Abstracts, Bibliography of Agriculture, and the Bulletin of the Torrey Botanical Club (8). Some bibliographies have their own special lists of abbreviations of periodicals.

Perhaps in time one list or system of abbreviations of titles will be adopted officially or otherwise accepted by a majority of publications or workers. At present taxonomists do not agree upon how to cite simple titles, such as North American Flora or Bulletin of the Torrey Botanical Club.

Where titles of books and old periodicals are to be abbreviated, the lists of abbreviations for single words by Jacobs (2, p. 331-349) and Whitlock (2, p. 258-278) are helpful. The first important word of a book title is needed because in a library card catalog the titles of a single author are listed alphabetically. Readers may lose time in searching for an old work cited too briefly or by subtitle.

For book titles two- to four-word abbreviations are not too long, but one-word abbreviations of long titles are to be discouraged. Unimportant words should be omitted, of course, and all those retained should be capitalized. The following title is an example: Browne, Patrick. The Civil and Natural History of Jamaica. 503 p., illus. London. 1756. In the International Rules (2, 3) it is cited as "P. Br., Hist. Jamaica," and some authors shorten the citation to "P. Br. Hist. Jam." In the good old days when there were fewer references, Linnaeus reduced the title to "jam." I urge that "Civ." for the first word in the title be retained and prefer "P. Br., Civ. Nat. Hist. Jamaica."

If the year is uniformly placed at the end, there is no need to enclose it in parentheses to prevent confusion with page or volume numbers. Ordinarily only the year is sufficient for the date, but month and day may be added in parentheses or brackets if important in priority. If the date on title page is incorrect, as determined from other sources, the proper date may be added in brackets.

Rickett (7, p. 169-171) has mentioned the lack of definition of what constitutes a volume, noting that a volume may be issued in parts paged continuously or separately and that two small volumes separately paged may be bound together. The safest guide is to include sufficient details in the citation for a reader to find the reference without difficulty. It should be optional to cite Linnaeus' *Mantissa Plantarum Altera* (1771) as "Mant. Pl. 2:" though paged continuously with his *Mantissa Plantarum* (1767). In references with dual systems, such as *Das Pflanzenreich*, noted by Rickett, citation of the second system in parentheses should be permitted, as some libraries may catalog books under it.

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LITERATURE CITED

- (1) Boivin, Bernard.
1949. Proposals in botanical nomenclature. *Canad. Field-Nat.* 63: 66-78.
- (2) Briquet, John, ed.
1935. *International Rules of Botanical Nomenclature*. Ed. 3, 151 p. Jena.
- (3) Camp, W. H., Rickett, H. W., and Weatherby, C. A., compilers.
1947. *International Rules of Botanical Nomenclature*. *Brittonia* 6: 1-120.
- (4) Camp, W. H., Rickett, H. W., and Weatherby, C. A.
1949. Proposed changes in the *International Rules of Nomenclature*. *Brittonia* 7: 1-51.
- (5) Jacobs, Katharine, compiler.
1950. List of serials currently received in the Library of the United States Department of Agriculture, November 1, 1949. *U. S. Dept. Agr. Bibliog. Bul.* 12, 349 p.
- (6) Little, Elbert L., Jr.
1949. Citation of botanical references. *Science* 110: 666-668.
- (7) Rickett, H. W.
1948. Citation of botanical references. *Torrey Bot. Club Bul.* 75: 166-171.
- (8) Schwarten, Lazella, and Rickett, H. W.
1947. Abbreviations of periodicals cited in the Index to American Botanical Literature. *Torrey Bot. Club Bul.* 74: 348-356.
- (9) Whitlock, Carolyn.
1939. Abbreviations used in the Department of Agriculture for titles of publications. *U. S. Dept. Agr. Misc. Pub.* 337, 278 p.
- (10) Whitlock, Carolyn.
[1940.] United States Department of Agriculture. Citations to literature in the *Journal of Agricultural Research*, technical bulletins, circulars, and miscellaneous publications (other than bibliographies). *U. S. Dept. Agr.* 17 p.